GAU 1645 # 11

PATENT
Docket No. 415852000100

CERTIFICATE OF MAILING BY "FIRST CLASS MAIL"

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on June 12, 2000.

Denise Lade

Denise Lade

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Jeffrey John Gorman

Serial No.: 09/202,035

Filing Date: December 17, 1998

For: VIRAL PEPTIDES WITH STRUCTURAL HOMOLOGY TO PROTEIN G OF RESPIRATORY SYNCYTIAL VIRUS

Examiner: B. Nelson

Group Art Unit: 1645

RESPONSE TO RESTRICTION REQUIREMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

This is in response to the Restriction Requirement dated May 12, 2000 for which a response was due on June 12, 2000.

Applicant respectfully points out that the pending claims are 1-33 which were filed December 4, 1998. The amendments to the claims in the December 4, 1998 preliminary amendment corrected the improper multiple dependent claims noted in the office action. Further, the restriction requirement only covered claims 1-14 from the original application, which included claims 1-18. Claim 15 was an improper multiple dependent claim, that has been

split into separate Group I and Group II claims. Claims 16-18 are methods of use of the compounds of group I so there is unity of invention with group I. We have, therefore, included those claims with group I. The amendments to the claims also changed the numbers of the claims such that the two groups are now as follows:

I. Claims 1-15, 19-20, and 22-33, drawn to a compound, diagnostic and pharmaceutical compound; and

II. Claims 16-18 and 21, drawn to an antibody.

Applicant hereby elects Group I (claims 1-15, 19-20, and 22-33), with traverse. Applicant expressly reserves his/her right under 35 U.S.C. § 121 to file a divisional application directed to the nonelected subject matter during the pendency of this application, or an application claiming priority from this application.

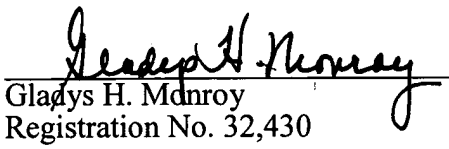
Applicant respectfully submits that there is unity of invention between Group I and Group II. Both groups are related by "special technical features" as required by PCT Rule 13.2. Applicant respectfully directs the examiner's attention to Appendix AI of the MPEP, where the PCT Administrative Instructions are reprinted. Annex B of the Administrative Instructions includes several examples of unity of invention. Example 1 shows that a claim to a substance and a claim to a use of that substance have unity of invention because the substance is a special technical feature common to both claims. Thus, the claims to the compounds of Group I and claims to their uses have unity of invention. Further, Example 8 shows that a claim to a plug characterized by feature A and a claim to a socket with corresponding feature A have unity of invention because feature A is a special technical feature common to both claims. The claims to antibodies of Group II are defined, in part, by their ability to bind to the compounds claimed in Group I much like a special plug with a corresponding special socket. Therefore, all of the claims share the compound as a special technical feature in common, so there is unity of invention between all claims.

Applicant requests examination of the elected subject matter on the merits.

In the unlikely event that the Patent Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Assistant Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 415852000100. However, the Assistant Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Respectfully submitted,

Dated: June 12, 2000

By: 

Gladys H. Monroy
Registration No. 32,430

Morrison & Foerster LLP
755 Page Mill Road
Palo Alto, California 94304-1018
Telephone: (650) 813-5651
Facsimile: (650) 494-0792

APPENDIX

CURRENT PENDING CLAIMS

1. A compound having structural homology to a contiguous sequence of amino acids within the sequence representing residues 149-177 of the G protein of respiratory syncytial virus, in which

a) no oligosaccharide is linked to potential serine, threonine or asparagine attachment sites;

b) four cysteine residues are involved in disulphide linkages; and

c) the pattern of disulphide linkage is Cys 173 linked to Cys 186, and Cys 176 linked to Cys 182;

and in which said compound possesses a biological activity of respiratory syncytial virus G protein.

2. A compound according to claim 1 in which the virus is selected from the group consisting of human RSV subtype A, human RSV subtype B, bovine RSV, and mutants and variants thereof.

3. A compound according to Claim 1 in which the compound is a peptide corresponding to amino acids 158 to 196 of the RSV G protein.

4. A compound according to Claim 1 in which the peptide corresponds to amino acids 165 to 187 of the RSV G protein.

5. A compound according to Claim 1 in which the compound is a peptide having one of the following amino acid sequences:

SEQ ID NO 1	K Q R Q N K P P S K P N N D F H F E V F N F V P C S I C S N N P T C W A I C K R I P N K K P G K K
SEQ ID NO 2	N
SEQ ID NO 3	R
SEQ ID NO 4	H
SEQ ID NO 5	N
SEQ ID NO 6	N
SEQ ID NO 7	N
SEQ ID NO 8	R
SEQ ID NO 9	S S K N K K D Y G Q L K S T S N K
SEQ ID NO 10	S S K N K K D Y G Q L K S T S N K
SEQ ID NO 11	P P K N K K D Y G Q L K S T S N K
SEQ ID NO 12	P P K N K K D Y G Q L K S T S N K
SEQ ID NO 13	P P K N K K D Y G Q L K S T S S N K
SEQ ID NO 14	P P K N K K D Y G Q L K S T S N K
SEQ ID NO 15	S S K N K K D Y G Q L K S T S N K
SEQ ID NO 16	N P S G S I E N H Q D H N N Q T L P Y T E G L A L S L H I E T E R A S R A
SEQ ID NO 17	P T R
SEQ ID NO 18	S R T

6. A compound having structural homology to a contiguous sequence of amino acids within the sequence representing residues 149-197 of the G protein of RSV, in which at least one of cysteines 173, 176, 182 and 186 is absent or blocked, and in which said compound is not glycosylated, and has the ability to inhibit infectivity of RSV.

7. A compound according to Claim 6, selected from the group consisting of :

acetyl-KQRQNKPPSKPNNDFHFEVFNFVPCSICSNNPTCWAICKRIPNKKPGKKAmide

acetyl-KQRQNKPPSKPNNDFHFEVFNFVPCGICGAmide

fluoresceinisothiocarbamyl β-

alanylKQRQNKPPSKPNNDFHFEVFNFVPCSICSNNPTCWAICKRIPNKKPGKKAmide

fluoresceinisothiocarbamyl β-alanylFHFEVFNFVPCSICSNNPTCWAIC

KRIPNKKPGKKAmide

benzoylbenzyl-KQRQNKPPSKPNNDFHFEVFNFVPCSICSNNPTCWAICKRIPNKKPGKK

Amide

biotinyl-KQRQNKPPSKPNNDFHFEVFNFVPCSICSNNPTCWAICRIPNKKPGKKAmide

acetyl-FHFEVFNFVPCSICSNNPTCWAICKRIPNKKPGKKAmide,

in which the cysteine residues are derivatised with acetamidomethyl.

8. A compound according to any one of Claims 1 to 6 which is a peptidomimetic compound.

9. A compound according to any one of Claims 1 to 7 in which one or more amino acids is replaced by its corresponding D-amino acid.

10. A compound according to any one of claims 1 to 7 in which one or more individual amino acids is replaced by an analogous structure.

11. A compound selected from the group consisting of the compounds of Claims 1 to 7, labelled with a detectable marker.

12. A compound according to Claim 11, in which the detectable marker is a radioactive label.

13. A compound according to claim 11, in which the detectable marker is a fluorescent, chemiluminescent or enzymic marker.

14. A diagnostic composition comprising a compound selected from the group consisting of the compounds of Claims 1 to 10 together with an acceptable carrier.

15. A pharmaceutical composition comprising a compound selected from the group consisting of the compounds of Claims 1 to 10 together with a pharmaceutically acceptable carrier.

16. An antibody directed against a compound selected from the group consisting of the compounds of Claims 1 to 10.

17. An antibody according to Claim 16 which is a protective antibody.

18. A composition comprising antibody selected from the group of the antibodies of Claim 16 and Claim 17.

19. A composition according to any one of Claim 14 in which the virus is human RSV.

20. A composition according to any one of Claim 15 in which the virus is human RSV.

21. A composition according to any one of Claim 16 in which the virus is human RSV.

22. A method of prevention or treatment of *Pneumovirus* infection comprising the step of administering an effective amount of a compound selected from the group consisting of the compounds of Claims 1 to 10 to a mammal in need of such treatment.

23. A method of diagnosis of *Pneumovirus* infection, comprising exposing a biological fluid or sample from a mammal suspected of being infected with said virus to a compound selected from the group consisting of the compounds of Claims 1 to 10, and measuring the interaction between the compound and said fluid or sample.

24. A method of immunisation against *Pneumovirus* infection, comprising the step of immunising a mammal at risk of such infection with an immunising-effective dose of a compound selected from the group consisting of the compounds of Claims 1 to 10, said compound being immunogenic and having the ability to elicit protective antibody.

25. A method of identification of a cell surface receptor for respiratory syncytial virus G protein, comprising the step of detection of binding of a compound selected from the group consisting of the compounds of Claims 11 to 13 to a cell surface protein.

26. A method according to Claim 24, in which the cell is susceptible to infection by respiratory syncytial virus.

27. A method according to Claim 25, in which the cell is susceptible to infection by respiratory syncytial virus.

28. A method according to Claim 25, in which the cell is a HEp-2 cell.

29. A method according to Claim 25, in which the method comprises the step of photoaffinity labelling of the receptor with a benzoylbenzyl derivative of the compound.

30. A method according to Claim 25, in which the method comprises the step of labelling of the receptor with a fluorescent derivative of the compound.

31. A method according to Claim 25, in which the method comprises the steps of binding a biotinylated derivative of the compound to a receptor, and binding of avidin to the derivative.

32. A method according to Claim 25, in which the method comprises the step of using an antibody according to Claim 16 to detect the binding of the compound.

33. A method according to Claim 25, in which the compound is multiply derivatised, thereby to achieve combined cross-linking, detection and identification of a receptor.